RESEARCH ARTICLE

A SMART HOME SECURITY SYSTEM BASED ON 3G

Theja vardhan Reddy[1], DR.K.Sreenivasa Ravi[2]
1.PG scholar, Dept. of ECM. K.L.University, Vaddeswaram, A.P, India,
2. Professor, Dept. of ECM. K.L.University, Vaddeswaram, A.P, India

Manuscript Info

Abstract

This paper introduces a smart home security system based on the technology of ARM and 3G communication. It uses lpc1768 hardware platform and embedded Linux operating system to implement the real-time display of the video images on the development platform. It presents the structure and work principles of the system, puts emphasis on the hardware processing circuits and design of video image software as well as the foundation of 3G remote communication.   Another, It carefully analyzes and studies video data compression of wifi camera and the 3G network transmission. Thus, a design of a convenient and economical device on real-time video capture and transmission is realized.

Introduction

The home security system using the wireless technology which is used to give indication that somebody entered into the room by giving buzzer sound as an indication which is just used to alert the people inside the home. But if nobody is present inside the home even if buzzer sound indication doesn't alert the people .This introduces a smart home security system based on the technology of ARM and 3G communication. It uses lpc1768 hardware platform and windows operating system to implement the real-time display of the video images on the development platform. It presents the structure and work principles of the system, puts emphasis on the hardware processing circuits and design of video image software as well as the foundation of 3G remote communication.

Another, It carefully analyzes and studies video data compression of wifi camera and the 3G network transmission. Thus, a design of a convenient and economical device on real-time video capture and transmission is realized.The system uses a compact circuitry built around lpc1768 microcontroller Programs are developed in Embedded C. Flash magic is used for loading programs into Microcontroller.

2. SYSTEM DESCRIPTION

High Security for home to develop a controller .where the pir sensor detects the stranger and voice was comes out of voice module .if any detection occurred .Then a message was sent to the registered mobile as someone entered through gsm module . and output was verified in wifi camera.
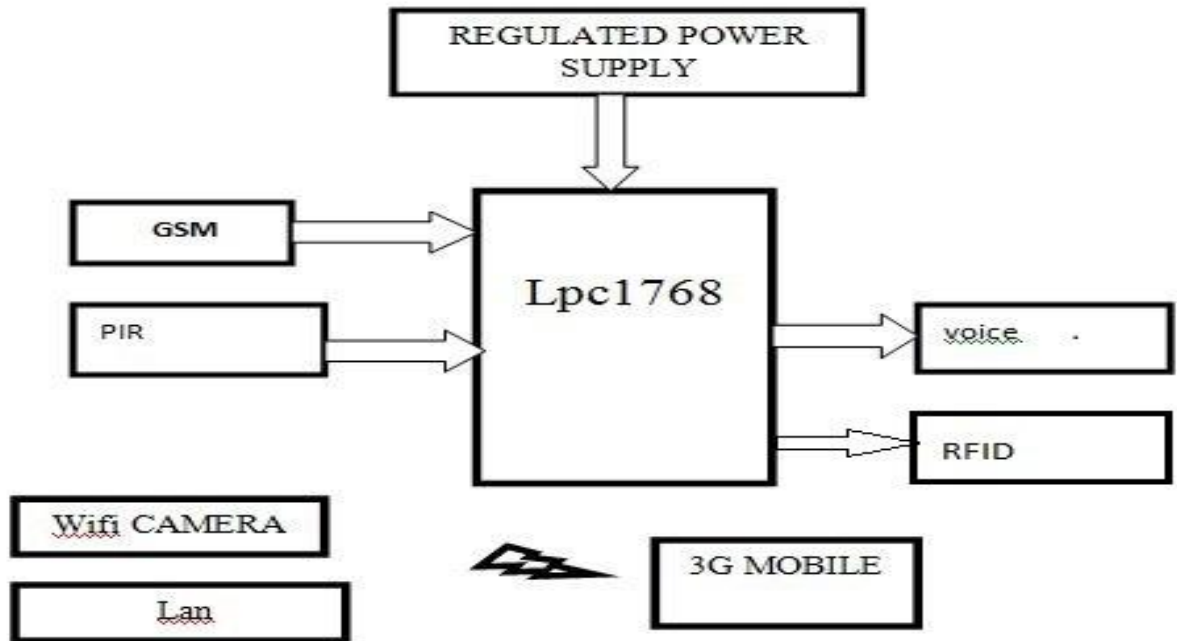
Figure 1: block diagram

The purpose of this is to improve the deficiencies of the control network in current smart home system, and to design the controller module, 3G module and wireless module for home security where as the first thing was when any stranger who enters in to the house can sense by the pir sensor .which detects up to 2mts when the detection was done immediately voice message has come out of the voice module. Then a message was sent to registered mobile number in the GSM module where we place a SIM card in to it. the external module was WIFI camera. Where we can see the concerned output when we registered with the camera through wirelessly the camera display the image where we placed we can capture the images for further use in our mobile phones. By using prescribed camera application in our mobiles or pc we see the output of the camera.

2.1 **WIFI CAMERA**
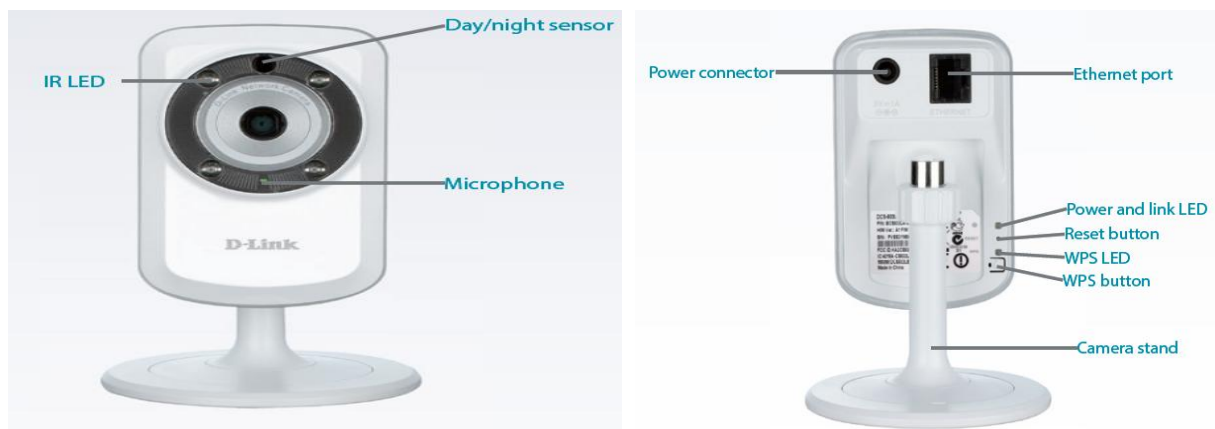   **Front view And Rear View:**

FIGURE 2: WIFI CAMARA

Not only can the DCS-933L connect via wireless N to your WPS-enabled router with a single press of a button, the extender mode can extend the range of your existing wireless network. This eliminates wireless dead spots to give you a more complete wireless coverage.

 Included with the DCS-933L is the free D-View Cam TM software. D-View Cam TM IP camera surveillance software is a comprehensive surveillance system designed to centrally manage multiple IP cameras. Supporting up to 32 IP cameras, D-View Cam TM is compatible with all current D-Link IP cameras and provides digital monitoring and recording of video, audio, and events for various security applications. This software provides users with a wide array of features for added convenience, including video recording and playback, Video mode, Map mode, Wizard mode, Expert mode, Event Action, and more.

3. HARDWARE DESIGN

The Global System for Mobile communication, usually called GSM, Telecommunications Standards Institute (ETSI) to describe protocols for second generation (2G) digital cellular networks used by mobile phones. The GSM standard was developed as a replacement for first generation (1G) analog cellular networks, and originally described a digital, circuit switched network optimized for full duplex voice telephony. This was expanded over time to include data communications. PIR sensors allow you to sense motion, almost always used to detect whether a human has moved in or out of the sensors range. They are small, inexpensive, low-power, easy to use and don't wear out. For that reason they are commonly found in appliances and gadgets used in homes or businesses. PIRs are basically made of a pyro electric sensor, which can detect levels of infrared radiation

The speech recognition system is a completely assembled and easy to use programmable speech recognition circuit. Programmable, in the sense that you train the words (or vocal utterances) you want the circuit to recognize. This board allows you to experiment with many facets of speech recognition technology. It has 8 bit data out which can be interfaced with any microcontroller for further development. Some of interfacing applications which can be made are controlling home appliances, robotics movements, Speech Assisted technologies, Speech to text translation, and many more.

Radio-frequency identification (RFID) is the wireless non-contact use of radio-frequency electromagnetic fields to transfer data, for the purposes of automatically identifying and tracking tags attached to objects. The tags contain electronically stored information. Some tags are powered by and read at short ranges (a few meters) via magnetic fields (electromagnetic induction). Others use a local power source such as a battery, or else have no battery but collect energy from the interrogating EM field, and then act as a passive transponder to emit microwaves or UHF radio waves (i.e., electromagnetic radiation at high frequencies).

4. EXPERIMENT RESULTS

In order to evaluate the device performance, we experiment on two aspects: testing whether the device may detected by the pir sensor and reader reads the cards to transmit the voice recorded .then message sent to mobile through gsm to check the wifi camera view in the mobile or pc

Hardware module:
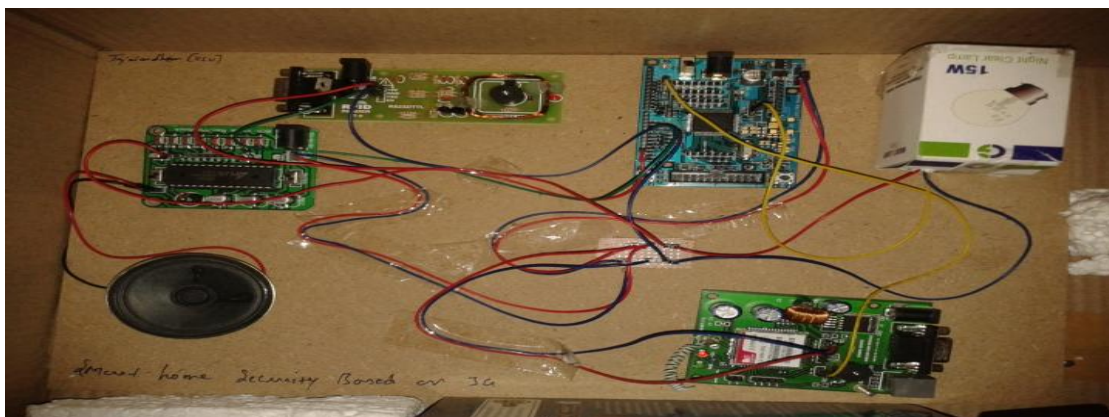
Zero Configurations will navigate to the mydlink Live View tab for your camera where you will see a screen similar to the following. If you wish to connect your camera to your router wirelessly, you can simply disconnect the Ethernet cable and move the camera to its intended location; your router's wireless settings have been automatically transferred to the camera, and no further configuration is required.
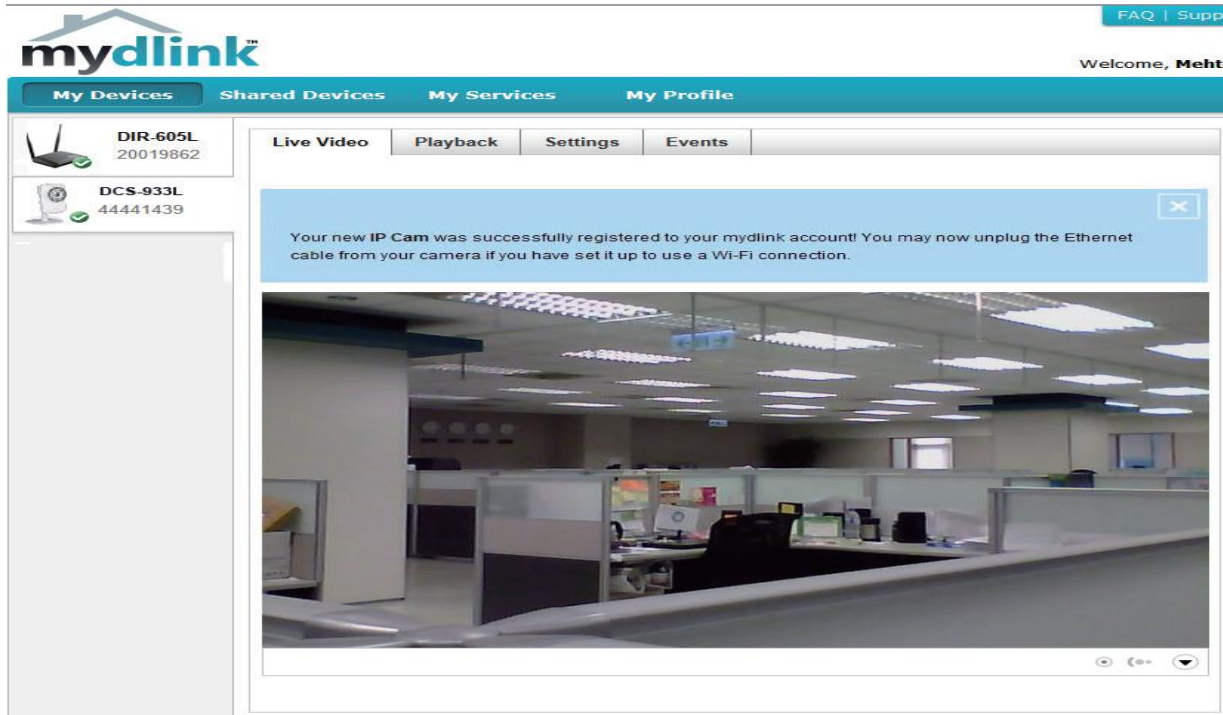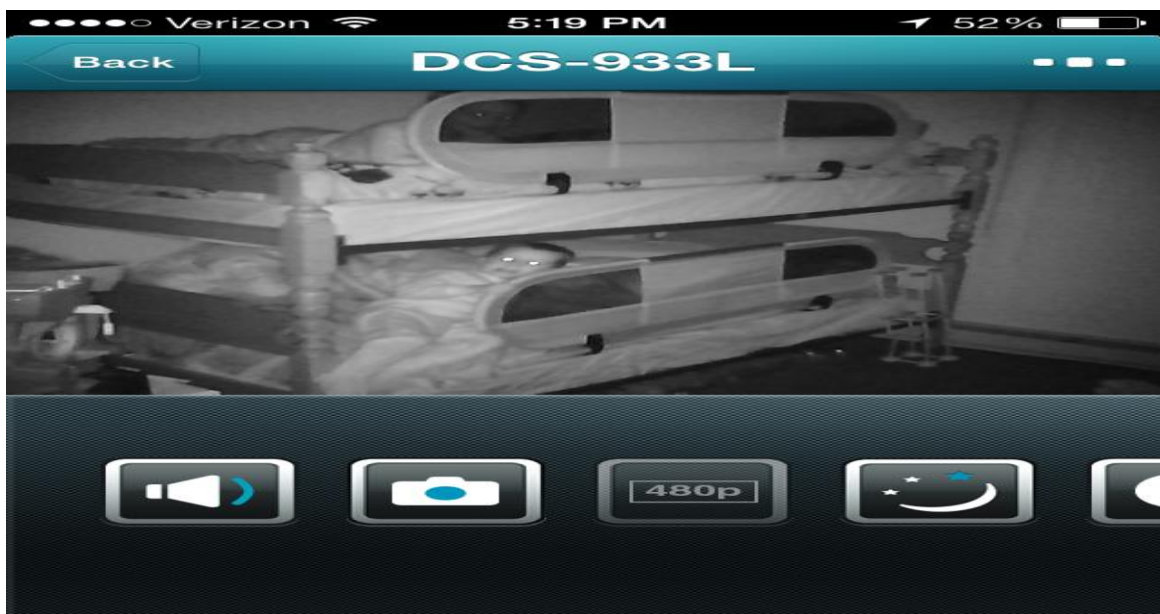

Figure 4: Pc View

Figure 4.1: mobile view

5. Conclusion

In this paper, a design for security for home or office in time have been designed and simulated. The simulation has been done and testing has been carried out using the developed prototype.

6. Acknowledgements

7. References

[1] X. GAO and L. Zhao, "Research and Design of Smart Home System Based on Zigbee Technology", Artificial Intelligence and Computational Intelligence (AICI), vol. 2, (2010) October, pp. 290-293.

[2] D. Yan, "ZigBee-based Smart Home System Design", Inf. Sci. & Technol., dept. Tianjin Univ. of Finance & Econ., vol. 2, (2010) August, pp. 650-653.

[3] N. Dou, Y. Mei, Z. Yanjuan and Z. Yan, "The Networking Technology within Smart Home System - ZigBee Technology", Computer Science-Technology and Applications, vol. 2, (2009), pp. 29–33.

[4] L. Liang, L. Huang, X. Jiang and Y. Yao, "Design and implementation of wireless Smart-home sensor network based on ZigBee protocol", Dept. of Common. Eng., (2008) May, pp. 434–438.

[5] YingHui Xu. Embedded system design of ARM9 [M]. Beijing University of and Astronautics Publishing house, 2007.

[6] Yongqiang Zhang, Guozhen Zhao, Yongjian Zhang, College of Information and Electrical Engineering Hebei University of Engineering Handan, China A Smart Home Security System Based on 3G.

[7] ZhiWai Liu.Research of embedded image monitors system based on ARM, Xi'an University of industry, 2006.

[9] Sheng Liao. Design of embedded remote monitoring system based on ARM. Beijing University of Posts and Telecommunications, 2006.

[10] Yong Zhang. Research and implementation of Embedded Internet based on GPRS [D]. University of Electronic Science and Technology, 2004.